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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,123	11/27/2000	Tinku Acharya	INTL-0210-P1-US (P7057X)	5940

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EXAMINER

JOHNSON, TIMOTHY M

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 10/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/723,123

Applicant(s)

ACHARYA ET AL.

Examiner

Timothy M Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: .

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Disclosure

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The Examiner suggests the following title:

"Wavelet Zerotree Image Coding of Ordered Bits".

Double Patenting Rejections - 35 USC § 101

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-5, 7-11, and 13-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16, 18, 19, 23, 25, 26, and 29 of copending Application No. 09/390,255 in view of Ogata et al., 5,777,678.

For claims 1-3, 7-9, and 13-14, providing error data that indicate motion in an image is not explicitly provided by the claims of 09/390,255 ("parent"), but is in no way precluded. Error motion data is typically coded in video to take advantage of temporal redundancy for substantial compression, so that error motion coding is a clear possibility with the parent case. Ogata teaches such error motion coding, as seen in at least Fig. 2A, at least blocks 11-14 and 90, the differential data providing for error data, and further, like the parent, Ogata uses a wavelet transform. See also Ogata in c. 6, line 32 – c. 7, line 35, It would've been obvious to one having ordinary skill in the art at the time the invention was made to code error motion information, since this provides for substantial compression of video data, and because Ogata provides for the further advantages of suppressing deterioration in c. 20, lines 15-22.

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For claims 4-5 and 10-11, wherein providing error data includes taking the difference between two successive image representations in an image sequence, wherein the taking the difference includes taking the difference of two successive discrete wavelet transform coded frames is provided by Ogata in at least Fig. 2A, and the fifth full paragraph in c. 7.

This is a provisional obviousness-type double patenting rejection.

4. Claims 6, 12, and 15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16, 18, 19, 23, 25, 26, and 29 of copending Application No. 09/390,255 in view of Ogata et al., 5,777,678, and Zandi et al., 6,222,941.

For claims 6, 12, and 15, including coding the bits based on whether or not the data exceeds a predetermined threshold value is not explicitly provided by the parent case claims, but is basically part of zerotree coding by definition, so that the claims actually do provide for such. In any case, Zandi makes this clear in at least where cited herein below, such as the second and third full paragraphs in c. 23, and the paragraph bridging cols. 23-24, where specified thresholds are provided to determine how and whether or not the image data is coded.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zandi et al., 6,222,941, in view of Ogata et al., 5,777,678.

For claim 1, a storage medium readable by a processor-based system, the storage medium storing instructions to enable a processor to cause the processor to zerotree encode image data is provided by Zandi in at least the paragraph bridging cols. 4-5, the first two and the last full paragraphs in c. 5. Providing data in an image is provided by Zandi in at least Fig. 1A, by input image 101, and Fig. 3A.

Providing error data that indicate motion in an image is not explicitly provided by Zandi, but is suggested, since Zandi does clearly provide for video data in the penultimate full paragraph in c. 5. Error motion data is typically coded in video to take advantage of temporal redundancy for substantial compression, so that error motion coding is a clear possibility with Zandi. Ogata teaches such error motion coding, as seen in at least Fig. 2A, at least blocks 11-14 and 90, the differential data providing for error data, and further, like Zandi, Ogata uses a wavelet transform. See also Ogata in c. 6, line 32 – c. 7, line 35, It would've been obvious to one having ordinary skill in the art at the time the invention was made to code error motion information, since this provides for substantial compression of video data, and because Zandi explicitly is capable of video coding, and because Ogata provides for the further advantages of suppressing deterioration in c. 20, lines 15-22.

Representing error data as a collection of ordered bits is provided by Zandi (and Ogata as noted above) in at least the penultimate full paragraph in c. 2, the first full paragraph in c. 16, the paragraph bridging cols. 16-17, the second and third full paragraphs in c. 24, the paragraph bridging cols. 29-30, and the first full paragraph in c. 32. Coding the bits of each order to indicate zerotree roots associated with the order is provided by Zandi in at least where cited above and the second through fifth full paragraphs in c. 23, the decoding section is also relevant, since the zerotree coded data is taught in c. 26, lines 23-67, and col. 27, lines 1-15, the paragraph bridging cols. 28-29, the first two full paragraphs in c. 29, the paragraph bridging cols. 29-30, and c. 35, line 65 – c. 36, line 46, and see also at least Figs. 1A-1B, most/all of Figs. 6A-9B indicating zerotree based coding.

For claims 2 and 8, determining which of the bits indicate zeros and classifying each zero as either an isolated zero or a zerotree root is provided by Zandi in at least the second and third full paragraphs in c. 23, and the last full paragraph in c. 25, where the coefficients including zero data bits are classified, inter alia, as an isolated zero or a zerotree root.

For claims 3 and 9, wherein some of the error data are descendants of some of the other error data is clearly indicated where cited above, which is merely the basic hierarchical relationship of wavelet and zerotree coding, where descendants (or "children") is taught throughout Zandi and where cited above. Determining zeros by traversing a descendant tree from a bit associated with one of the some of the error data to bits associated with the other error data to locate zerotree roots is provided by Zandi such as, for example, at least the tree as shown and disclosed, and where cited above with respect to the teaching of zerotree roots by Zandi.

For claims 4-5 and 10-11, wherein providing error data includes taking the difference between two successive image representations in an image sequence, wherein the taking the difference includes taking the difference of two successive discrete wavelet transform coded frames is provided by Ogata in at least Fig. 2A, and the fifth full paragraph in c. 7.

For claims 6, 12, and 15, including coding the bits based on whether or not the data exceeds a predetermined threshold value is provided by Zandi at least where cited above, such as the second and third full paragraphs in c. 23, and the paragraph bridging cols. 23-24, where specified thresholds are provided to determine how and whether or not the image data is coded.

For claims 7 and 14, see the rejection of at least claim 1.

For claim 13, see the rejection of at least claims 1 and 4, where Zandi clearly also provides for a system.

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Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy M. Johnson whose telephone number is (703) 306-3096, or the Supervisory Patent Examiner, Bhavesh M. Mehta, whose telephone number is (703) 308-5246.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone numbers are (703) 305-4700, (703) 305-4750, (703) 305-9600, or (703) 305-3800, or Customer Service at (703) 306-0377.

The Group Art Unit FAX number is 703-872-9306.

Timothy M. Johnson
Patent Examiner
Art Unit 2625
October 07, 2003


TIMOTHY M. JOHNSON
PRIMARY EXAMINER